As described from the foregoing, the example WIO network according to different embodiments of the present invention provides seamless mobility between a GSM network and another local radio network such as a wireless LAN, particularly when such a wireless LAN is used in hotspot areas or an area where higher bit rate or high quality of service (QoS) is desirable without having different terminals, devices and numbers.

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IN THE CLAIMS:

Please **amend** claims 10-11 and **add** new claims 21-30, as follows:

10. (Amended) A network architecture, comprising:

a local radio network comprising a Wireless Mobile Center (WMC) arranged to serve as a WLAN access point;

a cellular network comprising a Mobile Station (MS) operable in both said local radio network and said cellular network; and

a Handover Module implemented at either the Mobile Station (MS) or the Wireless Mobile Center (WMC) to provide seamless mobility between said local radio network and said cellular network, when the Mobile Station (MS) roams between said local radio network and said cellular network.

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11. (Amended) The network architecture as claimed in claim 10, wherein:

said local radio network corresponds to a wireless local area network (LAN) that is located in hotspot areas or an area where a higher bit rate or high quality of service (QoS) is desired, and uses a radio technology that is different from said cellular network; and

said cellular network corresponds to a Global System for Mobile Communication (GSM) network comprising the Mobile Station (MS) in a form of a dual-mode cellular phone operable in both said wireless LAN and said GSM network; a Base Station (BS) arranged to convert a radio signal from the Mobile Station (MS) for communication, and a Mobile Switching Center (MSC) arranged to establish call connection.

--21. A network architecture, comprising:

a first wireless network comprising an entity arranged to serve as an access point;

a second wireless network comprising a Mobile Station (MS) to access the first wireless network and the second wireless network; and

a Handover Module implemented at one of the first wireless network and the second wireless network to provide seamless mobility between the second wireless network and the first wireless network, when the Mobile Station (MS) roams between the second wireless network and the first wireless network.

22. The network architecture as claimed in claim 21, wherein:

said first wireless network corresponds to a wireless local area network (LAN) comprising said entity as a Wireless Mobile Center (WMC) to serve as an access point; and

said second wireless network corresponds to a Global System for Mobile communication (GSM) network comprising the Mobile Station (MS) in a form of a dual-mode cellular phone to access both wireless LAN and GMS radio technologies, a Base Station (BS) arranged to convert a radio signal from the Mobile Station (MS) for communication, a Mobile Switching Center (MSC) arranged to establish call connection.

23. The network architecture as claimed in claim 22, wherein, during an IDLE mode when the Mobile Station (MS) roams from said GSM network to said wireless LAN, the Mobile Station (MS) selects a WLAN radio and attempts a location update via said wireless LAN, and a new location of the Mobile Station (MS) is updated at the Mobile Switching Center (MSC).

24. The network architecture as claimed in claim 22, wherein, during an ACTIVE handover mode when the Mobile Station (MS) initiates a handover from said GSM network to said wireless LAN, the Mobile Station (MS) measures GSM neighbor cells and reports a WLAN cell as an ordinary GSM cell, enables transmission of a handover request to the Mobile Switching Center (MSC) of said GSM network, until the Mobile Station (MS) is handed over to said wireless LAN.

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25. The network architecture as claimed in claim 22, wherein, during an IDLE mode when the Mobile Station (MS) roams from said wireless LAN to said GSM network, the Wireless Mobile Center (WMC) informs GSM neighbor cells, and the Mobile Station (MS) selects a GSM radio and attempts a location update via said GSM network, and a new location of the Mobile Station (MS) is updated at the Mobile Switching Center (MSC).

26. The network architecture as claimed in claim 22, wherein, during an ACTIVE handover mode when the Mobile Station (MS) initiates a handover from said wireless LAN to said GSM network, the Mobile Station (MS) measures GSM neighbor cells, enables transmission of a handover request to the Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of said wireless LAN, until the Mobile Station (MS) is handed over to said GSM network.

27. The network architecture as claimed in claim 22, wherein, during an IDLE mode when the Mobile Station (MS) roams from said GSM network to said wireless LAN, the Mobile Station (MS) first camps in said GSM network, measures GSM neighbor cells for a WLAN cell, and when a WLAN transmission level is acceptable, attempts a location update, via said wireless LAN, and when the location update is accepted, camps in said wireless LAN and remains ready to make a call.

28. The network architecture as claimed in claim 22, wherein, during an ACTIVE handover mode when the Mobile Station (MS) initiates a handover from said GSM network to said wireless LAN, said Mobile Station (MS) measures GSM neighbor cells, reports measurement results, determines if a WLAN transmission level exceeds a limit and, if said WLAN transmission level exceeds a limit, lists a WLAN cell first in said measurement results, thereby allowing said Base Station (BS) to receive said measurement results, and indicate a handover to a WLAN cell before said Mobile Station (MS) is handed over to said wireless LAN.

a 9 cont

29. The network architecture as claimed in claim 22, wherein, during an IDLE mode when the Mobile Station (MS) roams from said wireless LAN to said GSM network, said Wireless Mobile Center (WMC) informs GSM neighbor cells; and said Mobile Station (MS) first camps in said wireless LAN, measures a WLAN cell and informed GSM neighbor cells, determines if a WLAN transmission level drops below a limit and, if the WLAN transmission level drops below the limit, camps in said GSM network based on predetermined variables, makes a location update via said GSM network.

30. The network architecture as claimed in claim 22, wherein, during an ACTIVE handover mode when the Mobile Station (MS) initiates a handover from said wireless LAN to said GSM network:

said Mobile Station (MS) measures a WLAN cell and informed GSM neighbor cells, and sends an indication if a WLAN transmission level drops below limit;

a9 cont

said Wireless Mobile Center (WMC) calculates the best GSM target cell, and starts a handover;

said Base Station (BS) sends GSM neighbor cells to said Mobile Station (MS) in response to a handover attempt; and

said Mobile Station (MS) is handed over to said GSM network.--